



Electronic Document Management System Technologies

Summary: While most records management programs effectively manage paper and microforms, few programs have the skills needed to control the life-cycle management of electronic records. Electronic document management technology provides the tools needed by records management professionals to manage the electronic documents created by an agency's business processes.

EDMS Overview

What is an EDMS? Today, electronic document management systems (EDMS) support the life cycle management of document based information (including data and any combination of text, images, graphics, voice, and video). These systems consist of a variety of technologies. These include digital imaging, document management, workflow, CD and optical storage, computer output to laser disc (COLD), document input, groupware, electronic publishing and intranets, records management, and search and retrieval. EDMS functions include capture, storage, classification, indexing, versioning, maintenance, use, security, and retention of documents.

Various combinations of the technologies can be integrated to create systems for information management. Combining multiple software applications and providing a common interface to them through the desktop is an excellent solution for agency record-keeping problems. For your agency, the first challenge lies in deciding which technologies are most suitable; then you must integrate them into a common strategy on an agency-wide level.

In general, all EDMS technologies are concerned with the same thing—managing document based information. Documents are segments of digital information with a beginning and an end that can be accessed and used by a person. They may be represented through various formats, such as alphanumeric text, vector data, digital maps, spreadsheets and databases, graphics, moving images, and audio data. Regardless of format, documents serve the purpose of conveying information.

One distinction between a document and a record is that a record has been set aside as evidence and is protected from alteration or change. The critical factor is how “set aside” is defined. In paper, being set aside means entering a document into a filing system from which it can be retrieved. With digital technologies, the same action is achieved by transferring an electronic document from an operational environment into a record-keeping system. By using a combination of technology, policy, and procedure, an agency can control the “setting aside” process that results in a record.

Digital Imaging

Digital imaging systems convert human-readable documents, usually paper, into computer-readable formats (electronic images). Imaging systems provide the agency with the ability to capture, store, retrieve, print, and fax document images. Imaging systems are often combined with optical storage technologies.

For example, Agency A tracks its budget and expenditures using a standard accounting software package. The agency wishes to eliminate the paper invoices and receipts it maintains from each purchase. An imaging application is selected to scan the paper documents and enter them into the accounting system.



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*Karen Handel, Secretary of State
David W. Carmicheal, Director*

Document Management

Document management software gives an agency the ability to retrieve and manage electronically generated information. The software allows documents to be associated with indexes and metadata that describe the file and enable revision tracking. The document management system facilitates quick retrieval of the records.

Workflow

Workflow systems are designed to automate business processes. Production workflow systems allow agencies to define and control all the steps of a business process. Such systems provide agencies with increased productivity, improved customer service, and tighter quality controls. Workflow systems can stand alone or be combined with an imaging application.

Within an accounting system, certain individuals may approve the purchase of products or services. Other individuals document the receipt of and payment for these products and services. A workflow system enables an electronic document, such as a purchase order or payment warrant, to move from individual to individual along a pre-determined purchasing authorization (approval) path and along a pre-defined payment authorization path. Digital signature technologies may be used to allow each individual in the workflow to "sign" or approve the document.

CD and Optical Storage

One of the most commonly used storage technologies in an EDMS is the jukebox. Jukeboxes provide what is called near-line storage and are available for both CDs and optical discs. This storage device offers a less expensive alternative to on-line devices and is capable of storing large volumes of data. Jukebox management software handles user requests and file transfers.

Using our previous example, after the invoices and receipts are scanned and entered into the document management system, they need to be stored for future use. With a small number of documents, online storage (on a PC or network server) may be the best option. In the example, Agency A has elected to burn the images to CD-ROM. The agency has purchased a CD-Tower (an array of several CD drives) to store the few CDs it currently maintains. The staff also has the option of loading individual CDs into the CD drive on a PC for viewing. But, as the number of images grows, adding to the number of CDs that require referencing, a better solution allowing faster image retrieval time is needed. Through the document management system a user requests the jukebox to retrieve the CD containing the requested information and place it into a network CD drive from where the information can be read.

Computer Output to Laser Disc (COLD)

COLD systems download data in a print file format from the host system to a workstation. There, the reports are indexed and stored on hard disk, optical disc, tape, or CD. The reports are then available for retrieval and distribution. COLD is an attractive solution for providing fast retrieval times, remote distribution, and ease of storage for digitally formatted reports.

In an accounting system, periodic reporting is required for Agency A to understand expenses versus obligations, fund status, or budget status (to name a few). These reports are often printed onto paper for audit purposes and for ease of reference. The installation of a COLD system would allow the reports to be stored electronically for the same purposes.

Document Input

Document input technologies include scanners, character-recognition and forms-processing packages, and document capture systems. The goal is to get the documents into the electronic system. Document input technologies are the key components to EDMS and imaging applications.

Groupware

Groupware systems enable information to be organized and shared in a collaborative work environment. More than just e-mail, groupware systems include such features as discussion databases, bulletin boards, electronic forms, and electronic schedulers.

During preparation of next fiscal year's budget request, Agency A will rely on facts and figures drawn from a number of sources in order to estimate budgetary needs. The director initiates a discussion database on the agency's intranet to facilitate information gathering. To make the completion of budget request forms easier and to ensure the accuracy of the information, the budget officer uses electronic forms software. The electronic form automatically calculates the totals and makes sure that all areas of the form are completed before allowing the user to move on.

Electronic Publishing and Intranets

Electronic publishing and intranet technologies provide the agency with the means of distributing the records. Agencies have the option of traditional publishing methods based in paper; publishing data to CD -ROM; or publishing records to the World Wide Web or to an agency intranet utilizing HTML authoring tools, browsers, and Web servers.

Records Management

Records management software gives the agency the ability to associate retention schedules with specific records and allows records to be moved from active file environments into near-line and off-line storage. Records management software not only controls the maintenance of electronic records but also can control the storage and disposition of paper and microforms.

Most accounting records need to be maintained unaltered through the conduct of an audit. A few records, such as the general ledger and the annual financial statement, are considered permanent records. These records must be maintained, unaltered and regardless of physical format, forever. Records management software can assist in this task. This software allows documents to be moved from an active filing environment where they may be revised into a storage environment (virtual) that controls access and tracks the retention period of the records.

Search and Retrieval

Text-retrieval systems help the user locate the information needed to conduct business. They provide agency staff with the ability to search for documents in a variety of different platforms, ending the need to know what format a document is in or where it is stored. Text-retrieval systems also feature such sophisticated capabilities as natural language searching, problem solving, and summarization. A critical aspect of search and retrieval capability is the consistent use of index terms.

Use of EDMS Technology

As stated above, the various technologies included with an electronic document management system can be used alone or in combination. Your agency may already make use of one or more of these

technologies. But should your agency invest the time and expense of implementing a full-fledged EDMS?

While providing increased accountability and quality control over agency business processes, the use of EDMS technologies requires an agency to identify and, in many cases, re-engineer its processes. Many agencies are looking for a technology “fix” to problems that are embedded in the work habits of agency staff, but this is not a realistic approach. Policy and procedural development, workflow identification and revision, and budget- and staff-allocation planning must precede the decision to use any EDMS technologies.

On a final note, while EDMS provides an agency with the capabilities of effectively and efficiently managing both its work and its records, no EDMS currently offers archival preservation functionality to ensure the reliability and authenticity of permanent records over time.

More Information

For additional information on electronic records management, please see the following Georgia Archives publications:

- *Adopting Electronic Records*
- *Checklist of Requirements for Electronic Records Management*

The Georgia Archives is ready to provide assistance to state and local governments that have questions about records—paper, microfilm, or electronic. Please contact us:

Georgia Archives
5800 Jonesboro Road
Morrow, GA 30260
Tel: (678) 364-3790
Fax: (678) 364-3860
Email: rims@sos.state.ga.us
Web: www.GeorgiaArchives.org